



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

RBST2120-1
Job Sheet 171617



Part No: RBST2120-1

Job Qty: 4 ea

Part Name: Roller Fixture



Part Weight: 0 lbs

Status: Scheduled

Priority: Medium

Job Created: 2/6/18

Job Tracking No:

Due Date: 2/16/18

Created By: Marie Lajeunesse

Type: Stock

Description:

Note: RBST2100 REV.7 IPP REV:A 18.01.31 NEW ISSUE JFC VERF:DP

Ship Via:

Bill of Materials

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter/Supplier		Sign-off
					Setup hrs	Run Hrs	Workcenter / Supplier	Lead Time	
90	Start up Operation	4 Ea		2/15/18	0.00	0.00	Start Up Machining-3		
110	CNC Lathe	4 pcs		2/16/18	0.00	1.00	MORI SL-154		
120	QC	4 pcs		2/16/18	0.00	0.00	QC2 Machining-4		
130	QC	4 pcs		2/16/18	0.00	0.00	QC8 Machining-4		
132	Outsource	4 pcs		2/16/18	0.00	0.00	Outsource1 P0039441		18-03-27
140	Outsource	4 pcs		2/16/18	0.00	0.00	Outsource12		18-03-27
150	Packaging	4 pcs		2/16/18	0.00	0.00	Packaging2		18-04-12
160	QC	4 pcs		2/16/18	0.00	0.00	QC6		18-04-12
210	Packaging	4 pcs		2/16/18	0.00	0.00	Packaging3-1		18-04-12
220	QC21-SA	4 Ea		2/16/18	0.00	0.00	QC21		18-04-12

Part Op 110 - 1-Machine as per DWG. FB794 FOLIO REV: _____ DWG REV: _____ 2-Debur 3- Tap by hand
Descriptions: #8-32 thread 4-Engrave P/N And / or T/N number as required Using Marktronic engraver as per DWG.

132 - 1--Issue P/O to Metcore ; P/O 039441 RC55-60 2-Bead blast 3- Certificate of Conformity is required

NOTE DROP SHIP TO FINISHER Metcore to ship directly to Groupe Altech

140 - Issue P/O to Groupe Altech; P/O 039557 -Black oxide finish, MIL-C-13924C Class 1 -Certificate of Conformity is required

Job BOM

Part / Item	Component Name	Quantity	Operation	Container
MT-O1-R1.750	Tool Steel Round Bar 0.750 dia.	.6400 ft (.16 ea)	90-Start up Operation	

Job Allocations

Operation	Component Part	Required	Inventory	Allocated
90-Start up Operation	MT-O1-R1.750	1	0	0



Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
CANADA
TEL: 1 613 632-5200
Email: sales@dartaero.com
www.dartaerospace.com

Container No: S053752



Part: RBST2120-1

Job No: 171617

Serial No/Batch: S053752

Revision: 7

Inspector:

ns

be found.

Plex 2/6/18 9:50 AM Dart.lajeunesse.marie

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval		
Description Work Order Deviation				Disposition				Completed By	
								Lead hand / Supervisor Approval Verification	
								QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY							
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐				
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐				
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐				
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐				
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐				
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐				
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐				
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐				
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐				
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐				
Past Expiry Date ☐	Manufacturing Process ☐	OTHER : _____							
Misidentified ☐	Past Due ☐								

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed: _____ Date: _____

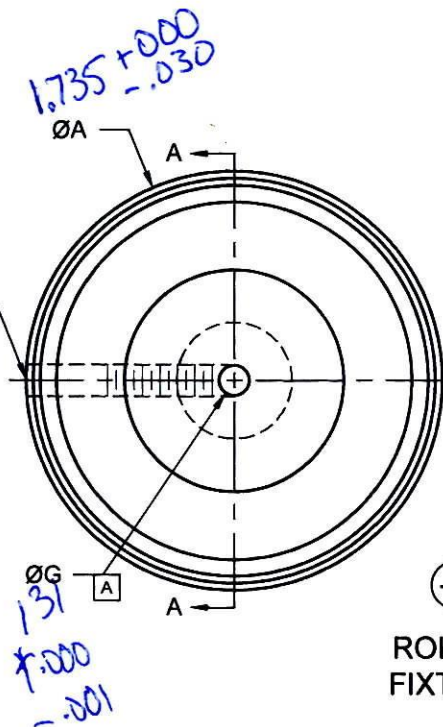
Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :				MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval	
Description Work Order Deviation				Disposition					
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐		OTHER : _____					

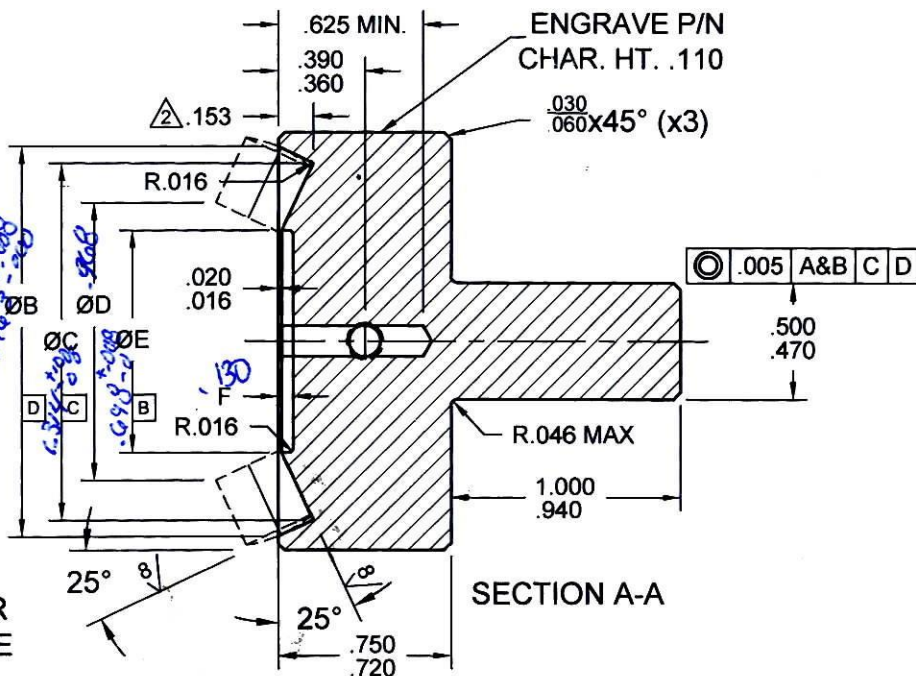
668

REVISIONS				
REV	DESCRIPTION	DATE	INITIAL	APPROVED
1	ADDED NOTE TO -1 BODY TO INSPECT BEFORE HEAT TREATING, ALSO CHANGED TOL., OF -1 ROLLER FIXTURE'S ØB, ØC, & ØE FROM +.002 -.000.	2/11/08	WP	DW
2	-15 CHD LOCATING PIN TOLERANCE FROM Ø.2480 Ø.2475 TO Ø.250 P.F. -11 & -13. -11 & -13 CHD FROM Ø.247 Ø.246 TO REAM Ø.290. REMOVED MS14102 & MS14104 CHAMFERED BEARINGS FROM LIST.	2/19/08	WP	GE
3	ADDED KST2128 & KST2162 -13 REMOVED 25° ANGLE FROM SECONDARY SEAT AND DELETED ØB DIMENSION. ADDED QTY TO -13 & -15 CHART.	4/22/08	WP	DW
4	-5 CHD ROLLER RADIUS FROM .005 -.010, TO .015 -.020, -9 PIN RADIUS FROM .015 MAX., TO .015 MIN. CHD -7 SLEEVE TO -7 GUIDE.	7/7/08	WP	DW
4A	CHD T/N FROM KST2100.	11/19/09	RJC	
5	CORRECTED ERROR -3 WAS .165 NOW .172 FOR ROLLER CLEARANCE. ADDED REVISIONS TO ALL PAGES.	1/18/10	WP	DW
6	-1 RBST2128 CHD ØB WAS 1.802 IS 1.776, CHD ØE WAS 1.042 IS 1.028.	9/10/13	CFS	GE

#8-32 UNC THRD
LENGTH 3/8 MIN.
C-BORE Ø.187
DEPTH OPTIONAL



ROLLER
FIXTURE



NOTES

- BREAK ALL SHARP CORNERS (.015/.03).
- DIMENSION TO BOTTOM OF R.016=.153; DIMENSION TO SHARP CORNER=.158.
- 1 BEARING RACE SURFACES MUST HAVE SMOOTH APPEARANCE, FREE FROM MACHINING MARKS AND GROOVES.
- DO FIRST ARTICLE INSPECTION BEFORE HEAT TREATING.

TOOL #	ØA +.000 -.030	ØB +.008 -.000	ØC +.008 -.000	ØD P.D. REF	ØE +.008 -.000	F +.030 -.000	ØG +.000 -.001	MATERIAL
RBST2120	1.735	1.463	1.314	.968	.698	.130	.131	DRILL ROD Ø1-3/4 x 1-7/8
RBST2128	2.000	1.776	1.629	1.283	1.028	0	.131	DRILL ROD Ø2 x 1-7/8
RBST2162	1.875	1.521	1.375	1.031	.767	0	.131	DRILL ROD Ø2 x 1-7/8



RED BARN MACHINE

TITLE RBST2100 SERIES TRI-ROLLER SWAGING
TOOL; ROLLER FIXTURE

DWG NO. TOOL# (see chart)-1

REV 7

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES

TOLERANCES ON:
DECIMALS

XXX ± .005
XX ± .01
X ± .1

FRACTIONS ± 1/32
ANGLES ± 5°

UNLESS OTHERWISE SPECIFIED
1. BREAK ALL SHARP EDGES
.015 x 45° PR .015 R
2. DIMENSIONAL LIMITS APPLY AFTER PLATING

SCALE NTS

DATE 1-23-08

SHEET 2 of 9

DRAWN BY PERRITT

APPROVED D. Med

HEAT TREAT RC 55-60

FINISH BLACK OXIDE

USED ON BEARING

SEE Pg. 1

checked for material



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER **PO039441**

Supplier: MEI001-VC
Metcor Inc.
560 Boul. Arthur Sauve
Saint-Eustache
QC
J7R 5A8 Canada
Phone: 450 473 1884
Fax: 450 491 5498

PO No: PO039441
PO Date: 3/27/18
Due Date: 4/3/18
Purchase Order
Revision:
Revision Date:
Ship-To Contact: Tsimiklis, ChrisoulaPhone:

Ship To: 1270 Aberdeen Street
Hawkesbury
ON
K6A 1K7 Canada
Phone: 613-632-5200

Via: Ground
Pymt Terms: Net 30
Freight Terms:
Special Comments:

Items

Line Item	Job	Part	Description	Status	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (CAD)	Extended Price
1	171617	RBST2120-1	Roller Fixture 1--Issue P/O to Metcore ; P/O _____ RC55-60 2-Bead blast ***NOTE*** ensure abrasive blasting does not damage the critical surfaces 3- Certificate of Conformity is required ***NOTE*** DROP SHIP TO FINISHER Metcore to ship directly to Groupe Altech	Firmed	4/3/18	4 pcs	0 pcs <i>4x</i>	4 pcs <i>At 18/04/18</i>	\$25.00/pcs	\$100.00

Line Item Note *need ready ASAP

Thank you!

2	171040	RBST1007-1	Roller Fixture 1--Issue P/O to Metcore ; P/O _____ RC55-60 2-Bead blast ***NOTE*** ensure abrasive blasting does not damage the critical surfaces 3- Certificate of Conformity is required ***NOTE*** DROP SHIP TO FINISHER Metcore to ship directly to Groupe Altech	Firmed	4/3/18	4 pcs	0 pcs <i>4x</i>	4 pcs <i>At 18/04/18</i>	\$25.00/pcs	\$100.00
---	--------	------------	--	--------	--------	-------	--------------------	-----------------------------	-------------	----------

Line Item Note *need ready ASAP

Thank you!

METCOR INC.

560 BOUL. ARTHUR-SAUVÉ, ST-EUSTACHE, QC, J7R 5A8

Tél.: 450-473-1884

Télécopieur / Fax administration: 450-491-5498

Télécopieur / Fax production: 450 491-6454

Detailed Certificate of Compliance

BON DE TRAVAIL order	CHARGEMENT load
326521	1

CLIENT / customer 215

DART AEROSPACE

1270 ABERDEEN

HAWKESBURY

ON K6A 1K7

LIVRÉ À / shipped to:

GROUP ALTECH

2455 ALPERN

ST LAURENT

QC H4S1N9

0 AVR. 2018

COMMANDE DU CLIENT customer po	CLASSIFICATION PIECE part classification	MATÉRIEL material	MAÎTRE D'OEUVRE prime contractor	PROGRAM
39441	N/A	O1		
<u>SPÉCIFICATIONS DU PROCÉDÉ</u> processing specifications				
SEL HARDEN				
HARDEN AND TEMPER				
EXIGENCE / requirement SPÉCIFICATIONS / specified TESTS EXÉCUTÉS / performed RÉSULTATS DE TESTS / results				
HARDNESS		55 - 60 HRC	5	58 - 60 HRC
QUANTITÉ quantity	POIDS weight	DESCRIPTION DES PIÈCES parts description		
12	5	RBST2120-1 (4) RBST2120-1 JOB. 171617 (4) RBST1007-1 JOB. 171040 (4) RBST2854-1 JOB 173093 1 BOITE DE CARTON		

COMMENTAIRES / commentsSALT HARDEN 1475F, 50 MIN
TEMPER 450F, 2 HRS

Toutes les opérations de TT ont été faites en conformité avec les requis de la spécification demandée et toutes les vérifications et les tests demandés ont été faites et documentés. Aucun changement n'a été faite par rapport au TT. On certifie que le matériel a été fabriqué, échantillonné, testé et inspecté en accord avec les spécifications du matériel et le bon de commande et le matériel rencontre les exigences spécifiées.

Ce document et les documents qui lui sont joints peuvent contenir des informations confidentielles, être soumis aux réglementations relatives au contrôle des exportations ou ayant un caractère privé. S'ils ne vous sont pas destinés, nous vous signalons qu'il est strictement interdit de les divulguer, de les reproduire ou d'en utiliser de quelque manière que ce soit le contenu. Toute exportation ou réexportation non autorisée est interdite.

Heat treatment (HT) was performed with equipment that meets the requirements of requested specification.

All HT operations were performed in compliance with the required HT specification and all verifications have been performed and documented. No unauthorized changes were performed in regards to the HT. We certify that the material was manufactured, sampled, tested and inspected in accordance with the material specification and the purchase order and was found to meet the requirements.

This document and any attached documents may contain confidential or proprietary information and may be subject to export control laws and regulations. If you are not the intended recipient, you are notified that any dissemination, copying of this e-mail and any attachments thereto or use of their contents by any means whatsoever is strictly prohibited. Unauthorized export or re-export is prohibited.

Isabel Otero
QA Technician

APPROUVÉ par / Approved by:

Isabel Otero

DATE: 2018-04-05



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER **PO039557**

Supplier: GRO002-VC
Group Altech
2455 Halpern
St Laurent
QC
H4S 1N9 Canada
Phone: 514-335-3666
Fax: 514-335-3868

PO No: PO039557
PO Date: 4/10/18
Due Date: 4/24/18
Purchase Order
Revision:
Revision Date:
Ship-To Contact: Tsimiklis, Chrisoula
Phone:

Ship To: 1270 Aberdeen Street
Hawkesbury
ON
K6A 1K7 Canada
Phone: 613-632-5200

Via: Ground
Pynt Terms: Net 30
Freight Terms:
Special Comments:

Items

Line Item	Job	Part	Description	Status	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (CAD)	Extended Price
1	171040	RBST1007-1	Roller Fixture -Issue P/O to Groupe Altech; PO _____ -Black oxide finish, MIL-C-13924C Class 1 -Certificate of Conformity is required	Firmed	4/24/18	4 pcs	0 pcs 4x	4 pcs	\$10.00/pcs	\$40.00
2	173093	RBST2854-1	Roller Fixture -Issue P/O to Groupe Altech; PO _____ -Black oxide finish, MIL-C-13924C Class 1 -Certificate of Conformity is required	Firmed	4/24/18	4 pcs	0 pcs 4x	4 pcs	\$10.00/pcs	\$40.00
3	171617	RBST2120-1	Roller Fixture Issue P/O to Groupe Altech; PO _____ -Black oxide finish, MIL-C-13924C Class 1 -Certificate of Conformity is required	Firmed	4/24/18	4 pcs	0 pcs 4x	4 pcs	\$10.00/pcs	\$40.00

Grand Total: \$120.00

Order Notes

rec'd At 4/10/18



Certificat de Conformité / Certificate of Compliance

(008287-1)

2455, Rue Halpern | Saint-Laurent | Québec | H4S 1N9
 Tel: 514-335-3666 Fax: 514-335-3868
 www.groupaltech.com

Bon de Livraison / Packing Slip

008287 - 1

Livré à / Ship to

DART AEROSPACE LTD
 1270 ABERDEEN STREET
 HAWKESBURY, ON, K6A1K7
 CANADA
 Tel.: 613-632-5200 Fax.:

Client / Customer:

DART AEROSPACE LTD
 1270 ABERDEEN STREET
 HAWKESBURY, ON, K6A1K7
 CANADA
 BUYER:

Date expédition Ship date		Créé Par Generated By	Transport / No de Compte Courtier / Acc. No.	Bon de commande Client Customer Purchase Order No.				
11-Apr-2018		Aman		039557				
#Ligne Line#	No. de Série / # Pièce Part Number / Line Item Details Job # / Ref #	Description pièce(s)	CATG. U/M	Comm. /Ordered	Exp/ Shipped	Qté NC/ NC Qty	Qté Scrap/	À venir/ Back Order
1	RBST1007-1 Rev.	RBST1007-1 01 -BLACK OXIDE MIL-C-13924C CLASS 1	BLACK-OXIDE CH	4	4	0	0	0
2	RBST2854-1 Rev.	RBST2854-1 BLACK OXIDE FINISH MIL-C-13924C CLASS 1	BLACK-OXIDE CH	4	4	0	0	0
3	RBST2120-1 Rev.	RBST2120-1 01 -BLACK OXIDE MIL-C-13924C CLASS 1	OXIDE-BLACK CH	4	4	0	0	0

Notes Additionnelles / Additional Notes

Epaisseur réelle
Actual Thickness

Inspecteur Qualité
Quality Inspector

Réçu par
Received By

Nous certifions que les pièces énumérées ci-dessus ont été traitées en conformité avec votre commande et vos spécifications et rencontrent les exigences.
 Notre responsabilité financière et légale ne sera pas supérieure au montant de la facture issue.

We hereby certify that the parts listed above have been process in accordance with your purchase order and specifications and are in conformance with your requirements.
 Our financial and legal responsibility will not be higher than the amount of invoice.